

Appl. No. 10/809,096  
Amdt. dated March 22, 2005  
Reply to Office Action of September 22, 2004

**REMARKS**

In the Non-final Office Action mailed September 22, 2004, claims 1-14, 39, and 40 were examined and rejected as follows:

- Claims 10-13 were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by U.S. Patent No. 4,424,307 to DiEdwardo et al. ("the DiEdwardo patent").
- Claims 1-14 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over U.S. Patent No. 3,992,014 to Retford ("the Retford patent") in view of the DiEdwardo patent.
- Claims 39 and 40 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over U.S. Patent No. 6,508,724 to Dalton in view of the DiEdwardo patent.
- Claims 10 and 14 provisionally were rejected under obviousness-type double patenting in view of claims 15 and 17 of co-pending U.S. Patent Application No. 09/974,775 to Kim ("the Kim application").

Applicant respectfully traverses the rejections of the claims, for the reasons set forth below.

**The Invention**

Before addressing the specific claim rejections, it will be helpful first to briefly summarize the invention of the pending claims.

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The present invention is embodied in a golf ball comprising a syndiotactic 1,2-polybutadiene having a crystallinity between about 5% and about 50%, a mean molecular weight between about 10,000 and about 350,000, and a percentage of 1,2-bonds greater than about 70%. Preferably, the golf ball comprises a syndiotactic 1,2-polybutadiene having a crystallinity between about 10% and about 40%, and more preferably between about 15% and about 30%. Preferably, the golf ball comprises a syndiotactic 1,2-polybutadiene having a mean molecular weight between about 50,000 and about 300,000, more preferably between about 80,000 and about 200,000, and most preferably between about 100,000 and about 150,000. Preferably, the golf ball comprises a syndiotactic 1,2-polybutadiene having a percentage of 1,2-bonds greater than about 80%, and more preferably greater than about 90%. The golf ball can further comprise UV stabilizers, photostabilizers, photoinitiators, co-initiators, antioxidants, colorants, dispersants, mold releasing agents, processing aids, inorganic fillers, organic fillers, or mixtures thereof.

The present invention also is embodied in a golf ball composition comprising a syndiotactic 1,2-polybutadiene having a crystallinity between about 5% and about 50%, a mean molecular weight between about 10,000 and about 350,000, and a percentage of 1,2-bonds of greater than about 70%, and ionomeric polymers, non-ionomeric polymers, or mixtures thereof, wherein the ratio by weight of syndiotactic 1,2-polybutadiene to the ionomeric polymers and non-ionomeric polymers ranges between about 5:90 and about 90:5. More preferably, the ratio by weight of syndiotactic 1,2-polybutadiene to the ionomeric polymers and non-ionomeric polymers ranges between about 10:90 and about 80:20, most preferably about 10:90 and about 70:30. The ionomeric polymers can comprise copolymeric polymers, terpolymeric polymers, or mixtures thereof. The composition can further comprise a crosslinking agent, co-crosslinking agent, crosslinking accelerator, or mixtures thereof. When the composition comprises a crosslinking agent, the ratio by weight of crosslinking agent to syndiotactic 1,2-polybutadiene, ionomeric polymers, and non-ionomeric polymers preferably ranges between about 0.1:100 and about 10:100.

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**The Rejection of Claims 10-13 Under 35 U.S.C. § 102(b) Based on the DiEdwardo Patent**

On page 2 of the Office Action, claims 10-13 were rejected under 35 U.S.C. § 102(b), as allegedly anticipated by the DiEdwardo patent. Applicant respectfully traverses this rejection.

Regarding the DiEdwardo patent, the Examiner, on page 2 of the Office Action, stated the following:

Regarding claim 10, DiEdwardo discloses a composition comprising a polymer or copolymer and a syndiotactic 1,2-polybutadiene with more than 90% 1,2 units, an average molecular weight of more than 100,000 and a crystallinity from 15 to 25% (col 5, line 10; col 6, lines 54-59) . . .

The Examiner's reliance on the DiEdwardo patent is misplaced. In particular, the DiEdwardo patent *fails* to teach or suggest "a golf ball composition" as required by independent claim 10 and dependent claims 11-13. In contrast to the requirements of claims 10-13, the DiEdwardo patent merely teaches an oxymethylene polymer that is modified with 1,2-polybutadiene. The DiEdwardo patent makes *no* mention of the use of the modified oxymethylene polymer in sporting goods, much less a golf ball. For this reason, the § 102 rejection of independent claim 10 and dependent claims 11-13 is improper and should be withdrawn.

**The Rejection of Claims 1-14 Under 35 U.S.C. § 103(a) Based on the Retford and DiEdwardo Patents**

On pages 2 and 3 of the Office Action, claims 1-14 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Retford patent in view of the DiEdwardo patent. Applicant respectfully traverses this rejection.

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Regarding the Retford and DiEdwardo patents, the Examiner, on page 3 of the Office Action, stated the following:

Regarding claims 1-8, Retford discloses a golf ball comprising a (sic) at least 60% cis-polybutadiene and the remainder 1,2-polybutadiene. Retford does not disclose properties of the 1,2-polybutadiene. However, DiEdwardo teaches a syndiotactic 1,2-polybutadiene with more than 90% 1,2 units, an average molecular weight of more than 100,000 and a crystallinity from 15 to 25% (col 5, line 10; col 6, lines 54-59) . . . Regarding claims 10-12, Retford discloses a golf ball comprising a (sic) at least 60% cis-polybutadiene and the remainder 1,2-polybutadiene. Retford does not disclose properties of the 1,2-polybutadiene. However, DiEdwardo teaches a syndiotactic 1,2-polybutadiene with more than 90% 1,2-units, an average molecular weight of more than 100,000 and a crystallinity from 15 to 25% (col 5, line 10; col 6, lines 54-59) . . .

Applicant submits that it would *not* have been obvious to one of ordinary skill in the art at the time the invention was made to combine and modify the teachings of the Retford and DiEdwardo patents to result in the claimed invention of the instant application. The Retford patent discloses a golf ball preferably having at least about 60% cis-polybutadiene (known to one of ordinary skill in the art as 1,4-polybutadiene), and only mentions the 1,2-polybutadiene as an unintended fraction of the golf ball (see column 2, lines 22-25, and column 3, lines 20-31, of the Retford patent). While the Retford patent mentions 1,2-polybutadiene, it makes *no* mention of the syndiotactic form required by independent claims 1 and 10. One of ordinary skill in the art understands that the form of the 1,2-polybutadiene mentioned in the Retford patent is the atactic (random) form, and not the syndiotactic form. Furthermore, the DiEdwardo patent makes no mention of the use of syndiotactic 1,2-polybutadiene in sporting goods, much less golf balls. Thus, the Examiner's obviousness conclusion is based on the Applicant's specification (hindsight reconstruction) since there is *no* motivation to combine and modify the teachings of the Retford and DiEdwardo patents. For this reason, the § 103 rejection of independent claims 1 and 10, and dependent claims 2-9 and 11-14, is improper and should be withdrawn.

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**The Rejection of Claims 39 and 40 Under 35 U.S.C. § 103(a) Based on the Dalton and DiEdwardo Patents**

On page 4 of the Office Action, claims 39 and 40 were rejected under 35 U.S.C. § 103(a), as allegedly obvious over the Dalton patent in view of the DiEdwardo patent. Applicant respectfully traverses this rejection.

Regarding the Dalton and DiEdwardo patents, the Examiner, on page 4 of the Office Action, stated the following:

Dalton discloses a golf ball core composition comprising a first resilient material and a second reinforcing material (col. 6, line 65-col. 7, lines 3) . . . The reinforcing material may be a syndiotactic 1,2-polybutadiene (col. 10, lines 9-11) . . . Dalton does not (sic) disclose the properties of the syndiotactic 1,2-polybutadiene. However, DiEdwardo teaches a syndiotactic 1,2-polybutadiene with more than 90% 1,2 units, an average molecular weight of more than 100,000 and a crystallinity from 15 to 25% (col. 5, line 10; col. 6, lines 54-59) . . .

Applicant submits that it would *not* have been obvious to one of ordinary skill in the art at the time the invention was made to combine and modify the teachings of the Dalton and DiEdwardo patents to result in the claimed invention of the instant application. The Dalton patent discloses a golf ball core that includes a reinforcing polymer, for example, syndiotactic 1,2-polybutadiene (see col. 10, lines 10-11). As previously discussed, the DiEdwardo patent makes no mention of the use of syndiotactic 1,2-polybutadiene in sporting goods, much less golf balls. Thus, the Examiner's obviousness conclusion is based on the Applicant's specification (hindsight reconstruction) since there is *no* motivation to combine and modify the teachings of the Dalton and DiEdwardo patents. For this reason, the § 103 rejection of independent claims 39 and 40 is improper and should be withdrawn.

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**The Rejection of Claims 10 and 14 Under Obviousness-Type Double Patenting**

On pages 4 and 5 of the Office Action, claims 10 and 14 provisionally were rejected under obvious-type double patenting, as allegedly unpatentable over claims 15 and 17 of the Kim application. Regarding the Kim application, the Examiner, on page 5 of the Office Action, stated the following: "Although the conflicting claims are not identical, they are not patentably distinct from each other because the '775 application anticipates claims 10 and 14 in the present invention." Applicant notes this *provisional* obviousness-type double patenting rejection, and will consider the submission of a Terminal Disclaimer at a later date should claims 15 and 17 of the Kim application be included as part of an issued patent.

**Conclusion**

This application should now be in condition for a favorable action. Applicant respectfully request an early allowance of the claims herein. If for any reason the Examiner finds the application other than in allowance, the Examiner is requested to call the undersigned attorney at the below telephone number to discuss the steps necessary for placing the application in condition for allowance. If there are any fees due in connection with the filing of this amendment, please charge the fees to our Deposit Account No. 19-1853.

Respectfully submitted,  
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